

and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and range of equivalency of the claims are
5 therefore intended to be embraced therein.

What is claimed is:

- Sub A³* 1. A method for creating and recording search information for recorded digital data streams, comprising the steps of:
- 10 recording a received digital data stream by grouping the received digital data stream into stream object units, with each stream object unit having a predetermined length; creating and recording time information for said each stream object unit, the time information being used to
- 15 search for said stream object units; and creating and recording index information for pointing to the location on the time information for each stream object as management information for stream objects, each stream object consisting of a predetermined number of
- 20 stream object units.
2. A method set forth in claim 1, wherein said time information is the length of each stream object unit, expressed in terms of a count value counted at a constant interval.
- 25 3. A method set forth in claim 2, wherein said count value is a number incremented by 1 every the constant interval.
4. A method set forth in claim 1, wherein said index information is the order on said time information of a time
- 30 information entry related to each stream object.
5. A method set forth in claim 4, wherein said index information is the order on said time information of a time information entry corresponding to a first stream object

unit of each stream object.

6. A method for creating and recording search information for recorded digital data streams, comprising the steps of:

5 recording time information on the count value counted at a constant interval for each stream object unit, with each stream object unit consisting of transport streams; and

10 recording index information for pointing to the location on said time information for the start position of each stream object, each stream object consisting of one or more stream object units.

15 7. A method set forth in claim 6, wherein said count value is a number incremented by 1 every the constant interval for a stream object unit.

8. A method set forth in claim 6, wherein said index information is the order on said time information of a time information entry related to each stream object.

20 9. A method set forth in claim 8, wherein said index information is the order on said time information of a time information entry corresponding to a first stream object unit of each stream object.

10. A method for searching recorded digital data streams, comprising the steps of:

25 (a) reading search time information for stream object units, each stream object unit consisting of a plurality of digital transport streams and the search time information being the length of each stream object unit, expressed in terms of a count value counted at a constant interval;

30 (b) detecting a stream object containing a requested search time by comparing the requested search time with start time information of each stream object consisting of a predetermined number of stream object units, the start

time information having been recorded for accessing the stream objects;

(c) reading index information pointing to location on the search time information for a start position of the
5 detected stream object; and

(d) accessing a time information entry corresponding to said read index information.

11. A method set forth in claim 10, further comprising the step (e) of accumulating search time from the accessed time information entry to a time information entry corresponding to the stream object unit containing the requested search time.

12. A method set forth in claim 11, wherein said step (e) compares the accumulated search time with the requested
15 search time and determines the position corresponding to the requested search time based upon the comparison result.

13. A method set forth in claim 12, further comprising the step (f) of reproducing the recorded digital data stream from the determined position.

20 14. A method set forth in claim 10, wherein said index information is the order on said search time information of a first time information entry corresponding to the detected stream object.

15. An apparatus for creating and recording search
25 information for recorded digital data streams, comprising:

recording means for recording a received digital data stream by grouping the received digital data stream into stream object units and for creating and recording time information for each stream object unit for searching for
30 the recorded stream object units, with each stream object unit having a predetermined length; and

control means for creating index information for pointing to the location on the time information for each

stream object as management information for the stream object and controlling said recording means to record said index information, each stream object consisting of one or more stream object units.

5 16. An apparatus set forth in claim 15, wherein said time information is the length of each stream object unit, expressed in terms of a count value counted at a constant interval.

10 17. An apparatus set forth in claim 15, wherein said index information is the order on said time information of a time information entry corresponding to a first stream object unit of each stream object.

18. An apparatus for reproducing recorded digital data streams, comprising:

15 reading means for reading search time information for stream object units, each stream object unit consisting of a plurality of digital transport streams and the search time information being the length of each stream object unit expressed in terms of a count value counted at a
20 constant interval; and

control means for detecting a stream object containing a requested search time by comparing the requested search time with start time of each stream object consisting of one or more stream object units, and
25 controlling said reading means to read the index information pointing to the location on the search time information for the start position of the detected stream object, and moving the data reproducing position of said reading means to access a time information entry
30 corresponding to said read index information, wherein information on the start time of each stream object has been recorded for accessing stream objects.

19. An apparatus for creating and recording search

information for recorded digital data streams, comprising:

a data formatter to group a received digital data stream into stream object units and to create time information for each stream object unit for searching for the stream object units individually, wherein each stream object unit has a predetermined length;

a data recorder to record the digital data stream grouped by and the time information created by said data formatter; and

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10 a controller to create index information for pointing to the location on time information created by said data formatter as management information for the stream object and to control said data recorder to record the created index information, wherein each stream object consists of
15 one or more stream object units.

20. An apparatus for reproducing recorded digital data streams, comprising:

a pickup to read recorded stream object units and search time information for the stream object units, each
20 stream object unit consisting of a plurality of digital transport streams and the search time information being the length of each stream object unit expressed in terms of a count value counted at a constant interval;

a data analyzer to detect a stream object read by
25 said pickup containing a requested search time by comparing the requested search time with start time of each stream object consisting of one or more stream object units; and

a controller to control said pickup to read the index information pointing to the location on the search time
30 information read by said pickup for the start position of the stream object detected by said data analyzer, and to move the data reproducing position of said pickup to access a time information entry corresponding to the index

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information read by said pickup, wherein information on the start time of each stream object has been recorded for accessing stream objects.

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